Mask Confidence Training Procedures

1-1. Overview

a. Mask confidence training (MCT) demonstrates the effectiveness of personal protective equipment (PPE) in protecting against chemical, biological, radiological, and nuclear (CBRN) hazards. The Chemical Defense Training Facility (CDTF) at the U.S. Army Chemical School (USACMLS), Fort Leonard Wood, Missouri, is the premier training facility for CBRN PPE confidence and is only one of two designated facilities in the United States. Units must have a method to conduct MCT at their home station. This chapter provides guidance on how to plan and conduct the MCT.

b. An automated assessment test, such as the M41 Protection Assessment Test System (PATS), does not achieve the same level of Soldier confidence in individual PPE that is achieved by the MCT. The assessment test only verifies that the equipment is working and fitted properly. O-chlorobenzylidene malononitrile (CS) dispersed at low temperatures in a chamber builds confidence and encourages the practice of proper mask maintenance procedures, which are learned through performance-oriented training. CS is obtained through the supply channels as a Class V item. Units must procure, store, and dispose of CS in accordance with their installation regulations.

NOTE: Only CS in the capsule form will be used in the MCT chamber.

1-2. Facility Requirements

a. The MCT is conducted in a permanent or nonpermanent facility that will maintain a fairly uniform concentration of airborne CS to ensure optimum training conditions. A room or a tent with an area approximately 5 meters square and a separate entrance and exit is the most desirable facility.

b. When a tent is used as a chamber, take precautions to reduce the leakage of CS out of the improvised facility. Berm or pile earth or soil around the base of the tent to increase the seal. When training is completed, turn the tent inside out and air it for several days before placing it in storage. CS may linger in the fabric; therefore, it is recommended that the same tent be used as the improvised structure.

c. The materials required to create an improvised CS generator are listed in table 1-1 and pictured in Figures 1-1 and 1-2.

Table 1-1. Material Requirements

Item	*Remarks*
Empty tin or metal can	Can with holes punched on top
Flat metal plate	Candle support
Heat source	Candle or canned heat (for example, Sterno)
Ignition source	CS generator igniter
CS capsules	DODIC K765
Bricks	2 each
Fire extinguisher	2 each Safety
M41 PATS	Mask fit verification tool
Improvised chamber	Tent, GP medium (footprint 18' x 36', NSN 8340-01-456-3628 or 8340-01-491-1515, 4,536 cubic feet (about 128.4452 cubic meters internal volume)

Figure 1-1. Materials Required to Create an Improvised CS Generator

NOTE: The blue background in Figure 1-1 was used to provide easier observation of the CS capsules. It is not used to create an improvised CS generator.

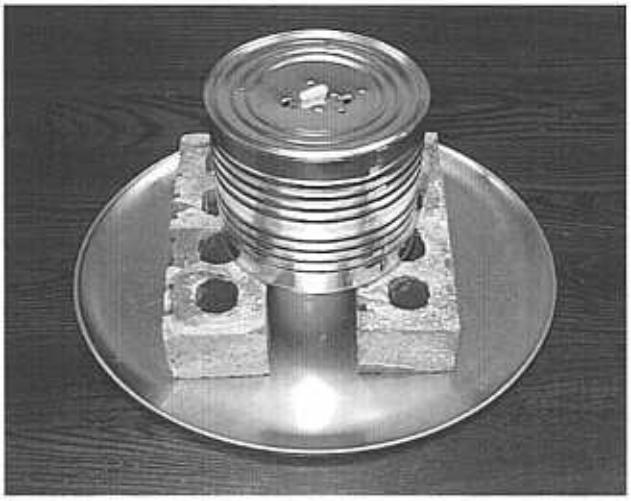

Figure 1-2. Improvised CS Generator Assembly

1-3. Safety

In addition to the specific safety precautions for certain munitions, training devices, agents, and simulators, the following safety procedures are provided to limit personnel hazards:

a. Conduct a safety inspection of the facility.

b. Ensure that only CS in capsule form (Department of Defense identification code [DODIC] K765) is used in the CS chamber (DA Pam 385-63, paragraph 16-2, and FM 3-11.11, Chapter 6).

c. Do not use CS grenades in confined spaces (tents, CS chambers, buildings).

d. Always follow environmental guidelines and material safety data sheets (MSDSs).

e. Obtain medical evaluation as required. Before being exposed to chemical training agents, Soldiers with respiratory conditions (including histories of asthma, cardiac conditions, severe facial acne, or any active dermatitis) will be referred to a medical officer. Also, Soldiers with open wounds and women who are menstruating, are pregnant, or suspect that they may be pregnant should be referred to a medical officer. The medical officer evaluates the health records of these individuals and, when necessary, examines them to determine their ability to undergo training without undue risk. The findings and recommendations of the medical officer are recorded in the individual's health record.

f. Do not wear contact lenses while wearing the individual protective mask. Individuals who normally wear contact lenses **must** remove them and use optical inserts. Unnecessary eye irritation will occur if CS particles are trapped under contact lenses. The lenses may also be lost due to excessive tearing. All Soldiers requiring corrective lenses will have masks with correctly fitted optical inserts before participating in MCT.

g. Ensure that an adequate water supply is available during the MCT. Soldiers should be encouraged to drink plenty of water based on the additional heat stress placed on them.

h. Launder contaminated clothing normally.

i. Do not allow direct simulant contact with skin or eyes.

j. Don the protective mask before entering the training facility or chamber.

k. Ensure that an eye wash station (5-gallon cans of potable water) is readily available.

l. Do not allow unprotected personnel to remain in the area during training.

m. Follow all range safety regulations.

n. Ensure that an ambulance and a qualified medic (with protective mask) are onsite.

o. Direct anyone suffering adverse reactions, other than temporary coughing or minor burning or tearing of the eyes, to the installation medical treatment facility for evaluation and treatment.

p. Ensure that a fire extinguisher is available, and identify its location.

CAUTION

High temperature dispersion (greater than 700°C) of CS may release hydrogen cyanide and hydrogen chloride.

q. Fit and test protective masks according to appropriate mask technical manuals.

r. Ensure that the facility or chamber is located at least 100 meters from any other activity and 500 meters from uncontrolled civilian access roads and cantonment areas (DA Pam 385-63, paragraph 16-2).

s. Ensure that instructors are combat lifesaver-certified.

t. Ensure that instructors are clearly identifiable.

u. Identify exit routes.

1-4. Chamber Preparation

The following are preparation steps that are required to properly and safely conduct MCT:

a. Ensure that the chamber is free of any physical hazards.

b. Ensure that lighting is adequate.

c. Ensure that fire extinguishers are easily accessible.

d. Ensure that a chart of the CS chamber and procedures are displayed outside the chamber.

e. Ensure that extra protective masks of all sizes are available.

f. Use an improvised CS generator (Figure 1-2) and CS capsules to establish the initial concentration of CS.

g. Keep exit doors of the chamber clear at all times.

NOTE: One capsule for each 30 cubic meters of volume will establish the initial concentration. Normally, one capsule placed on the improvised CS generator as every 10 individuals pass through the chamber will maintain the concentration (total volume = height (feet) x width (feet) x length (feet) x 0.02832 = cubic meters).

1-5. Training Procedures

a. A minimum of two instructors are required to operate the MCT. The primary instructor will be a school-trained area of concentration (AOC) 74A, military occupational specialty (MOS) 74D, or have attended the two-week CBRN Defense Course. The primary instructor will be located inside the facility, and the secondary instructor will be located outside the chamber. The CBRN noncommissioned officer (NCO) will fit and test protective masks according to appropriate mask technical manuals prior to MCT. Brief the Soldier on the purpose of the training, the type of agent used, MCT actions, and safety requirements.

b. Pre-position Soldiers who are waiting to enter the facility upwind to avoid potential exposure to the agent before masking.

c. Have Soldiers enter the MCT facility individually or in small groups. Five Soldiers per instructor is recommended.

d. Table 1-2 describes the minimum exercise requirements that should be conducted in the MCT chamber.

Table 1-2. MCT Exercises

1. **Breathing normally**—In a normal standing position, without talking, have the Soldiers breathe normally.
2. **Breathing deeply**—In a normal standing position, have the Soldiers breathe slowly and deeply, taking precautions not to hyperventilate.
3. **Turning head side to side**—Instruct the Soldiers to stand in place and slowly turn their heads from side to side to a full range of motion on each side. The Soldiers hold their heads at each extreme momentarily and inhale at each side.

4. **Moving head up and down**—Instruct the Soldiers to stand in place and slowly move their heads up and down. The Soldiers will inhale in the up and down positions.
5. **Rotating chin**—Instruct the Soldiers to stand in place and move their jaws in a circular pattern, holding their mouths slightly open to simulate speaking.
6. **Running in place**—Instruct the Soldiers to run in place for 60 seconds. **NOTE: Light exercise may be used to increase the breathing rate, which will detect a leaking mask more effectively.**
7. **Drinking water while in a contaminated environment**—Instruct the Soldiers to drink from their canteens without breaking the seal of their protective masks. See STP-21-1-SMCT, Task 031-503-1035, performance step 7(a-g).
8. **Donning and sealing mask in a contaminated environment**—Have the Soldiers close their eyes, hold their breath, and break the seals of their protective masks by pulling the masks up and away from their faces. Within 30 seconds, have the Soldiers clear and reseal their protective masks. See STP-21-1-SMCT, Task 031-503-1035, performance steps 3-5. If any Soldier experience symptoms other than minor skin irritations have him leave the facility immediately.

NOTE: If a Soldier detects the training agent during the MCT exercises, have him leave the facility immediately. The secondary instructor will identify and correct the problem and direct the Soldier to reenter the chamber. Soldiers are not required to completely remove their protective masks prior to exiting the chamber.

e. Have the Soldiers exit the chamber once the exercises are complete.

f. Upon exiting the MCT, all Soldiers will remove their protective mask and face into the wind until their eyes are clear of the CS agent.

g. Ensure that the heat-generating device is extinguished before leaving the MCT.

h. Once the MCT is complete, the Soldiers will clean and properly store their protective masks.

i. The instructors will conduct an after-action review, focusing on the importance of a properly fitted mask. The protective mask is a critical CBRN protection asset only if it fits properly. The protective benefit of the mask can be improved and maintained through proper maintenance, donning, adjustment, and wear of the protective mask.

The MCT is not a quantitative measure of the proper fit of the protective mask, which is the function of the M41 PATS; however, it is an additional performance-based training technique that can be used to instill confidence in PPE.